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important questions involving a choice of methods, the author has not always stated clearly his own conclusions. After reproducing certain statistics, reference is repeatedly made by a footnote, as on pages 78, 82, and 97 for example, to the fact that the validity of the method pursued in their compilation has been questioned, without any expression of opinion as to whether such criticism is justified or not. In other cases the pros and cons of a problem are given without any attempt to state a conclusion.

A second criticism relates rather to what the book is not than to what it is. The general title *Science of Statistics* is scarcely justified by the contents. Leaving aside the more than doubtful claim of statistics to be considered a science, a book so entitled should cover the whole ground of statistics in a fairly comprehensive and well proportioned way, with especial emphasis upon general rather than particular methods of procedure. This the work does not do. The great problems with which the directors of statistical work have to deal receive but scant or no attention. Of the subjects treated some are considered at length while others of equal importance receive but brief mention. As an instance of the latter may be mentioned the important class of provident and savings institutions which are scarcely mentioned though they are peculiarly susceptible of statistical treatment.

In conclusion, it should be said, that by the foregoing criticism it is by no means intended to convey the idea that Professor Mayo-Smith's book is other than one of extreme value to all persons interested either in statistics or economics. It was only desired to point out what to us seemed the ground that is and is not covered by it. With the method and conclusions of the author when expressed it is difficult to find fault. The questions treated have been handled with a rare skill, and the two volumes stand today as the best treatise on statistics in English and compare favorably with any in a foreign language.

W. F. WILLOUGHBY.

The Growth of Cities in the Nineteenth Century: A Study in Statistics.

By A. F. WEBER. (Studies in History, Economics, and Public Law, XI, edited by the Faculty of Political Science of Columbia University.) New York: The Macmillan Company, 1899, pp. xvi + 495.

THIS remarkably well-executed monograph is an outgrowth of a doctoral dissertation. It fully warrants its expansion into this more

attractive shape for the purposes of the general reader, dealing as it does with a striking phenomenon of the nineteenth century. No previous work in English deals at all so comprehensively with the subject; and none of the foreign ones, of which there are several, contains any extended treatment of the American data.

The first chapter contains an admirable discussion of statistical methods to be used in the determination of the facts concerning "agglomeration." The fallacy in average density of population statistics is made clear. Mere agglomeration, moreover, is insufficient as a social criterion, unless the absolute size of towns be also taken into account. The closely built hamlets of Europe represent agglomeration indeed as compared with American isolation; yet only when in excess of a certain size do they conform to the circumstances of real urban life.

After a comprehensive treatment of the history of urban growth the author engages in the third chapter in a discussion of the causes of urban concentration of population. Having already shown historically that the greatest general acceleration of urban growth has taken place since 1850, although in England and Scotland, Belgium, Saxony, and France in diminishing degrees, such concentration somewhat antedates the middle of the century, the prime causes in such movements are incidentally suggested as the industrial revolution and the development of transportation services. Such economic causes inherent in modern capitalism are strongly re-enforced by other social and political ones. Thus men, once grafted upon urban life, permanently acquire the social habit, just as industrial promoters tell us that they take on the telephone, the typewriter, and the street-car habit. Coincidentally with all these changes of material habits, and more important than any of them, they acquire the ambition habit. Being well out of the rut of customary observance, they begin to aspire socially. Social aspirations can never flourish on a truly agricultural basis. They may persist on a land-owning basis, as in England today, but never on one of actual cultivation as a means of livelihood. And finally among causes of agglomeration is to be mentioned the political one, of centralization of administration.

Urban growth and internal migration form the main topics in chapter iv. Recent rapidity of urban growth is, in a very suggestive criticism, shown to be due not so much to accelerated migration cityward as to a diminution of urban death rates. It is not that so many

more men relatively emigrate to the towns which causes their phenomenal increase of size, but that those who are already there or go there live longer and better. To use a phrase, which I have coined for use elsewhere, the ratio of urban "persistency" has become greater. This study of internal migration in Europe and America brings out at the hands of our author several significant facts. It is predominantly for short distances. The spheres of attraction are variable according to the size and importance of the town, although American modes of migration city-ward betray some peculiarities in these respects.

Chapters v, vi, and vii are admirable examples of statistical analysis, dealing with the demographic peculiarities of urban population. Such populations contain an unusual proportion of women, of middle-aged adults, and usually of those of foreign birth. The striking fact, however, is emphasized that "in the United States and in most of the commonwealths the percentage of foreigners has uniformly and almost steadily increased since 1850, while on the other hand it *has decreased in the cities.*" This is contrary to common opinion, but appears to be true exactly as stated. Other vital peculiarities of urban populations are shown to be the existence of a distinctly higher divorce rate and an abnormal death rate as compared with the country; but, on the other hand, marriage and birth rates are but little above the country standard, except in England and the United States. The overwhelming predominance of social over mere numerical considerations in the determination of such phenomena is very well emphasized. We are strongly tempted, did the limits of this review permit, to examine the very interesting question in this connection respecting the fact and causes for the greater proportion of female births in city populations. Some years ago¹ we ventured to suggest ethnic crossing as a partial explanation for the phenomenon. Diligent search since then has shown the phenomenon to be too general to strengthen this hypothesis. It remains, however, not impossible that the lesser degree of inbreeding may be of contributory influence. A problem in pure science awaits analysis so soon as data is available.

Our author, rather unduly, perhaps, disparages the value of existing vital statistics in the United States, sharing the general impression therein. We are inclined to take issue with this; and to maintain that a large mass of good raw statistical material is in existence in records

¹"Ethnic Influences in Vital Statistics," *Publications of the American Statistical Association*, n. s., vol. v. 1896, p. 23.

and elsewhere. It needs publication, of course, and the calculation of rates on a population basis, before it can become available for general use.¹

Chapter VII, upon the physical and moral health of city and country, deals at length with the sociological theories of Hansen, Ammon, and Lapouge. The question at issue in them all is as to the degree of natural selection involved in city ward migrations and the growth of urban populations. Kuczynski, it would appear, has furnished the principal fund of ammunition utilized in this connection. There can be little doubt that Hansen and Ammon both overstated the case. The tendency of city populations is certainly not so rapidly downward as their hypotheses imply. Nevertheless the facts of selection, strongly operative, remains true. This, for example, would seem to be shown in the data respecting bodily stature, collated in our study of the physical anthropology of Europe.² Dr. Weber had but half the facts in this connection at his command. While it is true, as he shows, that generally speaking urban populations are on the average shorter than rural ones, nevertheless a detailed analysis shows that this lower average of physical development is compounded of two elements. City populations contain an abnormally high proportion of stunted individuals; and in most cases an equally abnormal high proportion of finely developed ones, as compared with the country. A powerful process of social selection has attracted and favored the growth of each class in varying proportions. Any student in this field cannot but realize the great difficulty in utilizing social statistics in these ways. For example, the proportion of insanity is commonly taken as a test of deterioration, and the high proportion in city as compared with country, is quite generally held to be an unfavorable sign. Yet, consider how hazardous to argue on this question until we have more uniform practice in the treatment of the insane. In the cities insanity is quickly detected; it must be dealt with at once. A harmlessly insane person cannot be tolerated in a tenement as in an isolated farmhouse. Moreover, the classifications in city and country differ. Our Boston Board of Trustees of Pauper Institutions, on coming into power, proceeded at once and properly to cause the transfer of a large number of cases of senile dementia from the pauper

¹ Cf., for example, the admirable social study on Divorce from county records in Ashtabula county, Ohio, in the *Century Magazine*, vol. lix. (1900), pp. 636-640.

² *The Races of Europe* (1899), pp. 552 *et seq.*

institutions to those for the care of the insane. This is rarely done in country towns. How different may be the effect of such practices is apparent at once. It may even be, that rightly classified and judged, there is no greater proportion of insanity in city than in country after all ; perhaps even the reverse.

The two concluding chapters in Weber's work discuss the general effects of concentration of population ; and present tendencies and remedies. Fees for settlement, agricultural improvements, village amusements, administrative decentralization, the growth of suburban transportation, and the possibilities of widespread distribution of electric power for use in house industry are all passed in review.

The work as a whole is a masterpiece of statistical research and of social analysis. It cannot fail to be of great use to all students engaged in investigation along these lines. The bibliographical details, despite their abundance, evince careful proof reading. The only improvement which could be suggested, would be the adoption of some definite scheme of reference, with full titles of all works cited in a separate list at the end. Typographical errors, such as we note on page 85 are rare ; and good working indexes by author and subject serve to render the material easily accessible.

WILLIAM Z. RIPLEY.

Outline of Practical Sociology, with Special Reference to American Conditions. By CARROLL D. WRIGHT, LL.D., U. S. Commissioner of Labor. New York : Longmans, Green & Co., 1899. 12mo. pp. xxviii + 431.

THE unity of a book may be scientific or artistic. In the former case it proceeds by successive logical steps from point to point until some whole has been described and the intrinsic connection of its parts displayed. In the latter case the unity is vital rather than logical ; the thoughts or actions of some individual or group, real or fictitious, are the informing principle. In a study so inchoate as sociology, no high degree of scientific coherence is to be found, and the unity of the volume before us is almost as much artistic as scientific. It is a simple presentation of the results of a lifetime of investigation and thought upon the problems of modern American society. The motives for inclusion or exclusion of topics are more often personal experience or interest than the requirements of systematic presentation. A